AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings correct a typographical error in FIG. 14A.

Attachments: One (1) Annotated Sheet (FIGs. 13, 14A, and 14B)
                One (1) Replacement Sheet (FIGs. 13, 14A, and 14B)

REMARKS

Formalities

Claims 1-22 are pending in the present application.

In the Amendment, Applicant amends the title; amends the description of FIGs. 14A and 14B in the specification to correct typographical errors; and amends FIG. 14A to correct a typographical error. Applicant also amends claims 1-7 and 9-21 to improve clarity. No amendments are made in response to the Examiner's rejections.

Claim Rejections

In the Office Action, the Examiner rejected claims 1-22 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2005/0278606 A1 to Richardson et al. ("Richardson"). Applicant respectfully traverses this rejection.

Applicant submits Richardson does not set forth, expressly or inherently, each and every element of independent claim 1, 10, or 17.

Pursuant to applicant's invention it is possible to reduce the frequency at which a shuffle network means, which corresponds to "switches 1520 and 1522" in FIG.15 of Richardson, is changed. This is accomplished according to applicant's claimed invention by including a permutation matrix which is composed of two permutation matrices of a Kronecker product in a parity check matrix as an element of the present invention (see e.g., lines 23-25, page 16 of the specification and FIG.3 of the present invention.)

Further, a check node processing in Message-Passing decoding is performed sequentially on a unit of permutation matrix (see e.g., line 25, page 17 to line 3, page 19 of the specification and FIG.5 of the present invention.)

A variable node processing is also performed sequentially in "sequential scheduling" to produce the input data of a check node processing which will start processing before long (see e.g., lines 17-22, page 20 of the specification and FIG.7 of the present invention.)

Due to the various features, all not required to be adopted together, it becomes possible to speed up a convergence of Message-Passing decoding. This, for example, it becomes effective to calculate a sum of message and store it in a memory as stated in claim 3 of the present invention.

On the other hand, above-mentioned "sequential scheduling" is not at all considered in Richardson.

Although the circuit to realize the "sequential scheduling" is disclosed in the Non-Patent Document 2 (E. Bautillon) on line 1, page 5 of the specification, the "sequential scheduling" is utilized in the Low-Density Parity-Check Code (LDPC code) in the present invention. Then, the LDPC code comprises a parity check matrix which includes a permutation matrix as an element, and further, the permutation matrix has a construction of the Kronecker product in the present invention. The shuffle network means and the address generation means can be simplified in the present invention.

For at least these reasons, Applicant submits that independent claims 1, 10, and 17 are patentable under 35 U.S.C. § 102(b) over Richardson. Also, because the other art of record does not overcome the deficiencies discussed above with respect to Richardson, Applicant submits

that independent claims 1, 10, and 17 are patentable under 35 U.S.C. § 102(e) over the cited references, including Richardson and the other art of record. Additionally, Applicant submits that dependent claims 2-9, 11-16, and 18-22 are patentable under 35 U.S.C. § 102(e) over the cited references, including Richardson and the other art of record, at least due to their direct or indirect dependency from claim 1, 10, or 17. Therefore, Applicant respectfully requests that the rejection of claims 1-22 be reconsidered and withdrawn.

Request for Reconsideration and Allowance

In view of the above, it is respectfully requested that the application be passed to issue at the earliest possible time. If for any reason the application is found other than to be in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney at the Washington, D.C. telephone number (202) 293-7060 to discuss the steps necessary for placing the application in condition for allowance..

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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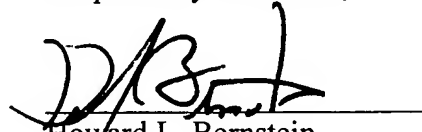
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Filed: November 26, 2003
SUGHRUE MION '202.293.7060
Reply to Office Action Dated: June 29, 2006
Annotated Marked-up Drawing (1 of 1)
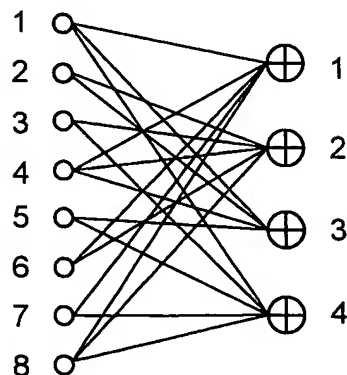FIGs. 13, 14A and 14B

11 / 12

FIG. 13

$$
\begin{pmatrix}
P & P & 0 & 0 & 0 & 0 & P & P & P & P \\
P & P & P & P & P & 0 & 0 & 0 & 0 & P \\
P & P & P & P & 0 & P & 0 & 0 & P & 0 \\
P & P & P & 0 & P & P & 0 & P & 0 & 0 \\
P & P & 0 & P & P & P & P & 0 & 0 & 0
\end{pmatrix}
$$

FIG. 14A
PRIOR ART

$$
H = \begin{pmatrix}
1 & 0 & 0 & 1 & 0 & 1 & 1 & 1 \\
0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 \\
1 & 1 & 0 & 1 & 1 & 0 & 0 & 0 \\
1 & 0 & 1 & 0 & 1 & 0 & 1 & 1
\end{pmatrix}
\begin{matrix} 1 \\ 2 \\ 3 \\ 4 \end{matrix}
$$

1 2 3 4 5 6 7 8

PARITY CHECK MATRIX H

FIG. 14B
PRIOR ART

TANNER GRAPH G